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AT the special meeting of the Board of Trustees of the American Institute of Architects, held at the rooms of the Institute in New York on the 16th ult., to consider, among other matters, the question of the proper treatment of the national monument to Washington, the following resolutions were adopted:—

Whereas, The exhaustive examinations of the Washington Monument at the national capital, which have been made by distinguished engineers and scientists connected with the Corps of Engineers attached to the War Department, show beyond a doubt that the present monument is of such imperfect construction and its foundations of so inadequate a character as to render it unwise to continue the work under any modifications whatever; therefore,—

Resolved, That the American Institute of Architects do respectfully recommend to the Washington Monument Association the abandonment of the present monument and its site, and the building of a permanent and graceful structure on some more suitable and trustworthy location, in memory of the illustrious Father of our Country.

Resolved, That the aforesaid Washington Monument Association be recommended to invite architects throughout the country to submit competitive designs for the said monument, under such regulations as to premiums as the said association may adopt; and that the decision as to the merits of the respective designs be referred to the Corps of Engineers, attached to the War Department.

Copies of these resolutions were forwarded to the various Chapters of the Institute, for an expression of opinion on the subject, which expressions were laid before the Board of Trustees at its meeting on Thursday, the 6th inst.

WE fear that the difficulty of calling members of the Chapters together at this season may have interfered with that full expression of professional sentiment which the subject demands. But these resolutions, before final adoption, should be considered with the greatest care. The Institute cannot be too cautious in committing itself on the subject of competitions; and in the present case it may be establishing a dangerous precedent in recommending the Monument Association to prepare, and the profession to submit to, a scheme and a final judgment both of which are without the advantage of professional advice. As this question is mainly a question of art, it is evident to us that in preparing a programme for such a national competition as is proposed, some representation of the body of architects should be present to counsel and advise. The preliminary considerations must necessarily involve the difficult point as to the expediency of retaining the truncated obelisk as the basis of design. Doubtless, if we take the highest ground of art, it would be best not to embarrass the free spirit of design with a condition so cumbrous and unusual. But the question of expediency must have great weight; and if the present structure can be made available, it would not be wise policy for the Association to sacrifice a mass of masonry so costly until all its possibilities of adaptation shall have been fully considered. If the foundations can be strengthened, if the present investment can in any practicable way be saved, it would seem that a solution of the problem thus presented by such resources of art as are at our command can be fairly challenged, however unpromising and unpoetical the conditions. It is not for us to shrink from the task. The genius of the country, if properly invoked, may prove equal to the emergency. For these reasons, and inasmuch as the appeal must be made mainly to the architects, we believe, whether the present structure is retained or not, that some one familiar with the conduct of competitions and with questions of art should advise with the Association from the beginning; and that, with all due respect to the distinguished corps of engineers attached to the War Department, it would be imposing upon them an ungracious task,—a responsibility which they would gladly avoid,—to make them the sole judges as to the relative merits of the designs submitted. It would take them into unfamiliar regions wherein, from the very positive nature of their habits of thought, they could not work with satisfaction to themselves or to the country. It is, as we have said, eminently a question of art, to be proposed, studied, and decided with that artistic feeling which results from special education. The dignity of art and the best interests of the nation therefore would, we consider, be equally subserved by simply submitting to the Monument Association, in behalf of the architects of the country, two resolutions, the one embodying an earnest protest against the completion of the original design, and the other a respectful proposition to assist the Association, by committee or otherwise (and, if desired, in conjunction with the corps of engineers attached to the War Department) in the consideration of the means whereby the highest art of the nation may be made available for the complete fulfilment of the enterprise in their charge.

AT the meeting of the Board of Trustees of the American Institute of Architects, held on the 16th ult., the following resolution was passed:—

"*Resolved*, That, in the opinion of the Board of Trustees, the interests of the profession demand that an appeal be made to the self-respect of the members of the American Institute of Architects to abstain from participation in the competition for a proposed Hospital for the Insane for the South-eastern District of Pennsylvania, as per advertisement in the *American Architect and Building News* of July 21 and 28 of the current year."

This resolution was submitted to the Chapters of the Institute for an expression of opinion. The conditions of this competition, and our remarks in relation thereto, may be found in our issue of Aug. 4, page 246.

THE mayor of the city of Boston has it in contemplation to remove the present incumbent of the office of Inspector of Buildings, Mr. Oliver Shaw, who has performed the duties pertaining to it with general acceptance for four years. All the architects of the city, together with the principal builders, a large number of real estate owners, and many others, have signed petitions requesting the mayor to retain this officer in consideration of his efficient service. We understand that the petitioners (certainly the architects) have felt constrained to take this action, not because they object to have the office more efficiently filled, or because they consider Mr. Shaw, however useful he may be in this function, absolutely the best man for the place; but because it is generally understood that the place is needed by the mayor as a reward for some political adherent, without necessary regard to his capacity, experience, or especial training. Indeed, the name of the candidates hitherto suggested are unfamiliar to architects or builders, but are known to have active associations with the details of local politics. The statute of the year 1872, providing for the creation of this important office, very properly requires that the Inspector and his assistants "shall be able and experienced architects, builders, or mechanics." This does not mean plasterers, plumbers, or mathematical-instrument mak-

ers, but men experienced in general building operations. The present incumbent fulfils this requirement; he has proved himself a vigilant, efficient, and honest officer, and has the advantage of special knowledge gained by experience. These are qualities too sterling, and are employed in duties too important to his fellow-citizens, to be lightly thrust aside in order to adjust a political machine. This statement is pertinent in these pages, because from constant contact with the office we know the peculiar value of technical knowledge and training in executing the provisions of the Building Act, and that without such knowledge and training in the executive department, the act must in part remain inoperative, and the citizens must lose somewhat of the protection to life and property which it is intended to afford. In this view of the case, it is not merely a blunder, it is a crime, to displace this officer, unless there is the strongest *primâ facie* evidence that the change will render the law more useful to the city, and that the only object in making the change is to secure this greater efficiency. Where life and property are at stake, the interests of politics become insignificant. The administrator who deliberately, after such warning, weakens the execution of the law in order to strengthen his party, will inevitably be held to the strictest accountability. The city of Boston is not accustomed to see its interests so sacrificed, and will not readily submit, we are persuaded, to such a dangerous prostitution of the powers invested in its chief executive officer. The ability to judge of the requirements of the Building Act in special cases, the resolution to enforce its provisions in the face of a reluctant or defiant owner, the vigilance to discover hidden imperfections of structure, the discretion to define the just line between actual and technical violations of the laws of safety: such qualities, it is fair to assume, are hardly to be found in ward-room politicians, who look upon office not as a serious responsibility, but as a reward for the dark service of party. It is therefore our duty to watch the course of events in connection with the proposed change with the most jealous scrutiny.

OUR English contemporary, the *Architect*, of Aug. 18, contains an interesting abstract of the series of by-laws just issued under the Public Health Act passed by Parliament in 1875, for the guidance of local sanitary boards in the construction and laying out of streets, the building and placing of houses, and the prevention of certain nuisances throughout the kingdom. In fact, these constitute to the whole nation what the building code of the metropolis is to London. Like our own building codes for large cities, this more comprehensive system was prepared under the advice of architects, the board having the matter in charge having obtained from the Institute of Architects a very elaborate statement of requirements covering the whole ground of good building. As regards streets, these by-laws enact that they are to be adapted to the easiest natural gradients, and prescribe the widths of the carriage-ways and foot-ways for various uses and localities, the "crown" of the road, the slope of the sidewalks, and height of the curbs. As regards new buildings, they require under the site of all dwellings a layer of cement or asphalt at least six inches thick; for outside and inside walls of domestic and public buildings and warehouses, they give rules for the footing, for the bonding, for the thickness in proportion to height and length, and for the area of piers. They specify in all dwellings a damp-course of sheet lead, asphalt, slates in cement, or other material impervious to moisture, to be laid under the lowest timbers, and at least six inches above grade. They require parapets on party-walls, three feet high in warehouses and public buildings, fifteen inches in other cases, give rules for the formation of recesses and "chases" in walls, the bedding of timbers in party-walls, for the bearing and support of bressummers, and require the placing of templates under the bearings of all girders. The construction of chimneys is fixed by very careful regulations as to foundations, materials, flues, corbelling, irons or arches over fire-places, and the thickness back of flues in various cases. No anchor or hold-fast is to be placed nearer than two inches to the inside of a flue; no woodwork nearer than nine inches. Roofs are to be externally covered with incombustible materials, and gutters and conductors or leaders are also to be incombustible. We shall take occasion hereafter to refer to the regulations which have yet to appear as to spaces about buildings, ventilation, drainage, etc.

IN our number for Aug. 18 (p. 261) we took occasion, in referring to the report of fires rendered by the Insurance Commissioners of Massachusetts, to state that insecure building as regards chimneys in especial is rather the rule than the exception in all our smaller towns, and to suggest that in order to provide against this constant and obvious danger, as well as against those of bad ventilation, imperfect drainage, and insalubrious sites, — dangers which we have always with us, fruitful in enormous loss of property by fires, and enormous loss of life by fevers and endemic diseases, — remedies should be speedily applied by legislation. The example which England has set us in this respect, and to which we have just briefly referred, is worthy of the most careful consideration. We hardly expected to see the eminent practicability of such legislation so soon illustrated; and we are convinced that the local Chapters of the American Institute of Architects, in conjunction, if necessary, with the underwriters and the Boards of Health, could readily, under the inspiration of facts, and with such an admirable example before them, put the remedy in such practicable shape that the State legislatures could not resist taking prompt action. In this manner the architects would once again justify themselves before the public, and secure that respectful consideration which it often seems they have yet to earn. To formulate for this purpose the familiar principles of sound building which guide the profession daily in preparing plans and specifications, and to make these principles capable of general application, would seem to be no very difficult task.

CAPT. JAMES B. EADS, engineer of the iron bridge across the Mississippi at St. Louis, and of the jetties at the delta of the same river, in conjunction with Mr. A. O. Lambert, also an eminent engineer, has prepared drawings and estimates for a bridge across the Bosphorus, connecting Constantinople with the Asiatic shore. This work, it is stated, will be about 6,000 feet long in 15 spans, the central one having a length of 750 feet, the two adjacent spans 500 feet, and the rest diminishing towards the ends to a minimum of 200 feet. The height of the roadway above the surface of the water will be 120 feet; 60 feet less than that of the Brooklyn bridge. The piers of the central span will be 50 feet thick, sunk in 100 feet of water. Submarine surveys conducted by the French and Turkish governments have disclosed the fact that there is solid rock about 20 feet under the bed of the river. The currents of the Bosphorus have great velocity, but less than that of the Mississippi at St. Louis. The experience of Capt. Eads, therefore, in the latter place will be of great value to him in sinking caissons for the construction of these mighty piers. The cost of the work is variously estimated at from $18,000,000 to $25,000,000. The spans are iron arches, so constructed that the weight of a train of cars or of troops moving in unison over the bridge will be distributed over the whole structure. We learn that English interests are largely concerned in this undertaking, as an essential part of the scheme of the "Euphrates Valley Railroad," by which it is proposed to connect Constantinople with the British possessions in India. The rival plan of M. de Lesseps, the engineer of the Red Sea canal, contemplates a railway from the Volga, across Turkistan, to Northern India. This is in the interests of the Russians. It is possible that under the pressure of the rivalry between these two nations, the vast scheme of Capt. Eads may ultimately be realized.

M. BEULE ON GREEK POLYCHROMY. — III.

I SAY nothing of the interiors of temples. No one has ever said that they could not have been painted. Nevertheless the temple of Egina alone has shown traces of color. Blue has been recognized upon the columns, red upon the walls, green and other tints upon the cornices. The ceilings of the porticos also were necessarily decorated with meanders and eggs. The soffits were also painted, and the coffers with golden stars on a blue ground. This is not the question. The problem is the exterior of the temple, the general aspect of the monument, — its complete effect. We have found color everywhere except upon the exterior wall of the cella. Did the columns, clad in a pale tint, stand out against a strong background? Blouet and Wagner have said that the wall of the temple of Egina was painted in red. Behind the Propylæum of Athens I have found red stucco

upon an older wall, of which Mnesicles has left only a pier standing.

There remain to us too few fragments of the Ionic order up to the sixth century to restore the paintings which decorated them. It is probable, since it was derived from the Doric order, that their ornaments had much analogy. In the Ionic they must have been more delicate and more multiplied. There are two capitals in the Acropolis at Athens, and a third in the temple of Theseus. I have already noticed these precious remains which Le Bas has published, and upon which M. Laudron has restored tints which conform to the favorite colors of archaic times. The outline alone remains; and the leaves, eggs, and frets can be seen applied to the mouldings to which their forms belong. We see the honeysuckle, still a little awkward, in the angle above the volute. Upon the sides of the capital, the frets, the leaves, the scales which are applied to the baluster, are also easily distinguished.

I can make here only a rapid review of the application of painting to the temples of the sixth century. The smaller details, the ornament of delicate mouldings, which I am obliged to omit, will be found in special treatises. We have collected enough of them to be well convinced that in the age of Pisistratus the temples were completely painted. There is no point where the traces of color have not been found, and that after so many years, so many devastations, and the prolonged action of climate.

Now what is the character, what is the style of archaic polychromy? It would naturally be in harmony with the character and style of the architecture. So long as the proportions are heavy, the mouldings simple, squarish, and even flat, the ornaments would not be free from a certain heaviness, a weight which later would give place to an ingenious delicacy. The diaper, which is to be seen upon a fragment at Athens, has a disconnected effect, scarcely architectural; it disappeared later, and descended to the floor, where it became a motive dear to mosaic-workers. The honeysuckle of the old Parthenon is heavy; its outline is strongly enforced by a sinkage, where the red color still remains. How unlike this is to the light and elegant honeysuckle which the following centuries preferred! At Egina the epoch is more advanced, and the ornaments already show more richness and grace. The colors must themselves submit to the logic of epochs. The hues of archaic times are harder, more austere. At first they feel the influence of terra-cotta, frequently employed, which takes only a few colors: yellow, red, brown, or black. Moreover, the favorite harmonies are grave and sad, — yellow and brown, brown and red, blue and green, yellow upon black, red upon black. The liveliest tones used were red and blue or red and green. These effects were not without grandeur and beauty. Distance effaced, perhaps, an appearance of hardness; besides, this hardness even had something architectural in it, and set off the decoration better.

Thus far we have set aside all theories, all preconceived ideas, all preference for systems, to consider only facts. Perhaps I may now be allowed to offer some hypotheses, which may be received with all the distrust which hypotheses deserve: —

For the history of polychromy I would assert the following: The first temples were of wood: this seems incontestable; and in admitting even that the influence of Egypt and of Asia, where every thing was painted, was not considerable, the very nature of wood called for color, if only to preserve it. There is nothing surprising in the blue wax for the triglyphs of which Vitruvius speaks. This coating protected the wood by filling its cracks, holes, and knots. Its color was crude, uniform, primitive, as you please; but I see in it necessity before there was art or effort at art.

Soon stone was substituted for wood. But in imitating it, in preserving its construction, its principles of stability and of adjustment, and its aspect, it was natural to preserve its colors. Was this from religious tradition? I know not. It was, at all events, from a tradition quite as strong, — habit. Such is the tyranny of habit, that it yields to progress only by slow and insensible transitions. After ages and ages, monuments without color come to be loved; but this cannot come suddenly, the very day that wood is exchanged for stone. If the stone has an uneven grain, and holes and flaws, which unfit it for painting, the stone will be coated with stucco. The oldest temples — those of Corinth and Paestum, Metapontus and Ægina — are covered with stucco.

We know, from certain proof, that stone temples were entirely painted at the time of Pisistratus. To the primitive tints were added, little by little, ornaments, more delicate details, running bands upon the mouldings; and it was a natural progress for art to go on multiplying this decoration, seeking variety, splendor, and, what is superior to splendor, clearness; for painted ornament upon the Greek temples, so far from injuring the effect of the architecture, or altering its forms, gave them value and prominence. I should except, perhaps, the Ionic capitals, of which I shall speak later, where the forms seem invented for the ornaments, and not the ornaments for the forms.

But let us imagine a temple of the Doric order, in stone, and covered with stucco. Would these tones be left white, monotonous, insipid? Stucco is a clothing which conceals the fitting of the stones, that fine appearance of bonding which gives security in our eyes, and which assures us that the building is solidly and logically built. . . . Architecture demands that color shall give to stucco, which is the envelope of its temple, form, meaning, and life, placing itself in intimate relation with the stone, that is to say, with the body of the temple. The color will mark the triglyphs and all parts of the design; it marks all the joints and all the essential members of the construction; where the stucco has nothing to emphasize, it will receive its own ornament, created by fancy, which will give elegance and lightness, as a garment of many folds has its borders and its embroideries.

We are used to seeing, in our cold and rainy climates, nothing but dull and blackish buildings. Colors and paints disappear quickly under our thick and corrosive fogs. Color, the delight of the eye, is not made for the people of the North. We scrape our buildings; to-morrow they are black again. We scrape them once more, and so we go from white to black, through intermediate grays, — true funereal hues, — which have more influence on the aspect of a town and the humor of its citizens than we suspect.

Let us make an effort of imagination, and, freeing our ideas from a routine which is the only source of our prejudices, let us look from the point of view of the olden time at Greece, Sicily, and Asia, with skies worthy to illumine the youth of the human race. Imagine a glowing sun, which suffuses every thing, colors all that it touches, and gilds the very rocks. Around the cities of the seafaring Greeks the deep-colored sea spreads its vast and changeful surface. The sunrise and sunset are of a splendor unknown in our country. The Greeks to this day call the sun's setting his reign, his special glory, — *Βασιλεύσις*. The very mountains reflect a thousand tints, which change from hour to hour. Amid this smiling and resplendent nature imagine a people, elegantly dressed in handsome draperies, the white offset with rich colors, the purple in all its glow; their linen dyed and embroidered by young girls' hands, a crown of flowers on every head at time of feast or sacrifice. Everywhere are porticos, fountains, resting-places, whence the idle throng can view their cherished city; warriors returning from their expeditions, with shining arms and painted shields; galleys furrowing the seas with vermilion prows, and stretching to the winds sails yellower than saffron. Everywhere is light and beauty; and color, the light of beauty. . . . On the high hills that overlook the towns, in their public squares and promenades, on their promontories stretching out to sea, imagine their temples, brilliant with color, always fresh because always renewed. They are not scraped, they are repainted; and not by journeymen, but by artists. Their columns of pale yellow, with capitals delicately ornamented, detach themselves boldly from the red walls of the cella. Their strong triglyphs show their blue front, and display the construction afar off. On their pediments, colored like the sky, Ajax, Hector, and the Homeric heroes are fighting. The fine mouldings of the porticos and entablatures are contrasted with their plain backgrounds by ornaments which mark them to the eye and give them value. Painted tiles shine beneath the sun's oblique rays; antefixæ with Medusa's head, acroteria, griffins with extended paw, crown the edifice; and color lends these monsters illusion and life. Their silhouette, outlined against the sky, gives lightness and movement to the whole building. To these add wreaths, garlands of flowers, golden shields hung against the architraves, inscriptions in letters of gold,

gates of bronze, trophies, statues, altars, vases, offerings innumerable. With attention quickened and informed by study, let us contemplate within ourselves this radiant apparition of the antique temple, and then dare to say, as has been said hitherto, that it was the work of barbarians.

Barbarians! I am afraid that it is not the ancients who are the barbarians. We are a people full of taste; we believe it, and it is true; but taste is a small thing compared with the great sentiment of art. And by what right do we moderns, whose degenerate sense can no longer bear any but pale and sickly tints, violet, pale rose-color, pearl-gray, tender blue; we who invented, or rather borrowed from ladies' dressing-rooms, harmonies of colors as false as they are insipid, that have a deplorable influence on our school of painting, — by what right do we tell the Greeks, our masters in art, whom we have never succeeded in equalling, "You are barbarians"? We are like those descendants of old families who stagger under the lances of their ancestors, and cannot even lift them. These lances have gained battles; and so the colors with which the Greeks painted their temples have been the object of admiration, the cause of delight to a whole people, — a people mightier in art than ourselves, and with a far grander comprehension of divine beauty.

SANITARY ENGINEERING.[1]

IV.

AFTER treating quite fully, and with some novelty, of the storage of rain-water for domestic use, the construction of tanks, filtering appliances, etc., Mr. Denton, in his "Concluding Remarks on the Sanitation of the Dwelling," says in substance, —

Whatever good may come of giving pure air and pure water to a town, a village, or a hamlet, unwholesomeness of living may still come from the bad sanitary arrangement of dwellings. Sewerage, water-supply, cleansing, and scavenging are everywhere regarded as essential; yet the dwelling — "the unit of sanitary administration" — is held sacred against the intrusion of the health officer. Every dwelling — from the palace to the cabin — must sooner or later be subject to sanitary rule, and its occupants must be compelled to turn to proper account the pure air and pure water placed at their command. It is hoped that each dwelling will be let with a certificate of healthfulness, and that the tenant will be compelled to maintain the healthful condition. Owners and speculating builders will resist obligations; but resistance to such a necessary change cannot long prevail. A large proportion of newly built houses are without proper sanitary appliances. Such as do exist are of bad construction or of inferior material. A great difficulty in the way of improvement, is that the supervision of such works is intrusted to ignorant inspectors; and it is of the earliest importance that such vital duties should be placed in the hands of properly qualified persons, — a class of persons yet to be created.

Mr. Denton gives an epitome of the chief desiderata in the sanitary improvement of dwellings, which may be briefly given as follows: —

1. No cesspool within or under any dwelling, under any circumstances.
2. No drain should pass under any dwelling, if it can be avoided.
3. Soil-pipes should be thoroughly ventilated, also any space connecting the water-closet with the soil-pipe; as, for example, the chamber under the valve of the ordinary water-closet.
4. All outlets from sinks and slop-hoppers should discharge, not into the soil-pipe, but by independent pipes leading through the side of the house, and delivering over a "trapped gully" in the yard, outside of the house.
5. All solid refuse should be removed at short intervals.
6. All private sewers, drains, traps, and gullies should be thoroughly water-tight, to protect the ground from pollution.
7. All private sewers and drains should be kept clean by flushing, and all grease should be intercepted.
8. Ground water should be removed by under drains, so that it may not stand within three feet of the foundation of the house.
9. Cellars and basements should be protected against soil moisture by damp-proof courses, concrete flooring, and air-spaces between the foundation-wall and the ground.
10. No water should be used for domestic purposes which is not up to the "attainable standard of purity:" where possible, it should be supplied direct from its source, without the use of a cistern or tank in the house.
11. All water drawn from a cistern or tank in the house should be filtered after it leaves this.
12. No water for cooking or drinking should be drawn from a cistern from which water is *directly* drawn for water-closets and sinks.

These suggestions have our full indorsement, with the exception of paragraph 4. In our opinion it is always safe to discharge all properly constructed outlets into a properly constructed and thoroughly ventilated soil-pipe. In our northern climate the "trapped gully" may give trouble in severe winter weather; and it is always a possible source of foul air outside of, but near to the house.

The section on *The Dwelling* concludes with a Postscript, from which we quote a statement which is fully applicable to our own country houses of the better sort: "The observations I have been able to make lead me to the conclusion, that there is no class of dwellings which more positively demands sanitary re-organization than that which comprises the mansions of our country gentry, while I believe that there is no class of society which will less readily acknowledge the fact than that which occupies them."

It is suggested that occupiers of such houses should examine for themselves: 1. The state of the domestic offices and dormitories; 2. The condition of wells, tanks, and cisterns; 3. The way in which objectionable gases may find entrance, "by unventilated soil-pipes and sink-pipes, from sewer and cesspits, into the rooms and passages frequented by themselves as well as their servants;" that they should know the condition of the surrounding ground, often soaked with sewage from leaky sewers, and with roof-waters carried into such sewers.

"Surely there can be no greater mistake than this assumption," that the pure air of the country protects country houses against air pollution, and that, because they are remote from *other* dwellings, the water of their wells is free from contamination. Then follows an account of the actual condition of things, which may well make the unaccustomed reader shudder, but which is nothing more nor less than a correct account of the condition prevailing about a very large majority of our own country houses, even of the best class.

The following suggestion is quite as appropriate here as in England: "No country house should be without a plan of its sewers, drains, and water-pipes, conspicuously placed for the observation of servants as well as superiors; and no pains should be spared to make every one understand that the sewers and sanitary appliances of a country dwelling require just as much care and attention as the public sewers of a large town. . . . In the absence of such a record, as much money is expended in ascertaining the cause and position of any thing wrong as there is in putting it right when the defect is ascertained."

[1] Sanitary Engineering: a series of lectures delivered before the School of Military Engineering, at Chatham, Eng., by J. Bailey Denton, F. G. S. M. Inst. C. E., etc. E. and F. N. Spon, London and New York.

THE ILLUSTRATIONS.

TWO CONDEMNED CITY CHURCHES: ST. DIONIS BACK CHURCH, FENCHURCH STREET; THE CHURCH OF ALLHALLOWS, BREAD STREET, CITY, LONDON.

THESE drawings taken from the *Building News* are of interest, as representing the first of the City churches to be demolished.

The Church of St. Dionis has its east front in Lime Street, and south side towards Fenchurch Street, though the latter is almost hidden by a range of low buildings fronting upon Fenchurch Street. The present building is the third church dedicated to St. Dionis, or rather St. Dionysius, which has stood upon this site. When the original church was erected is unknown, but it is mentioned as early as the 13th century. This gave place, at the commencement of the 15th century, to a new building, which seems to have been of considerable importance until it was destroyed in the great fire of London in 1666. The present building was finished (with the exception of the tower) in 1674, from the designs of Sir Christopher Wren. The tower (erected in 1684) stands at the south-west corner of the church, and was originally surmounted by a small turret, which was removed about 50 years since. It will be remembered that this is the tower Mr. Street is said to have proposed to Gothicise.

Respecting the general appearance of the building which preceded the present church of Allhallows, Bread Street, now, in its turn, about to be demolished to make room for business premises, nothing is known; but on referring to Godwin and Britton's "Churches of London," we find mention made of such a building occupying this site as early as the year 1349. After the burning of this place of worship in the great fire of 1666, no steps seem to have been taken by the parishioners to supply its place till in 1680, under the superintendence and from the designs of Sir Christopher Wren, the present edifice arose. The cost of this new building was £3,348 7*s.* 2*d.*, part of which sum (£600) was raised by a tax on coals (levied for the purpose of erecting new churches in the City), and the remainder obtained by loans.

HOUSE AT PITTSTON, PENN. MR. BRUCE PRICE, ARCHITECT.

(241 Broadway, New York, N.Y.)

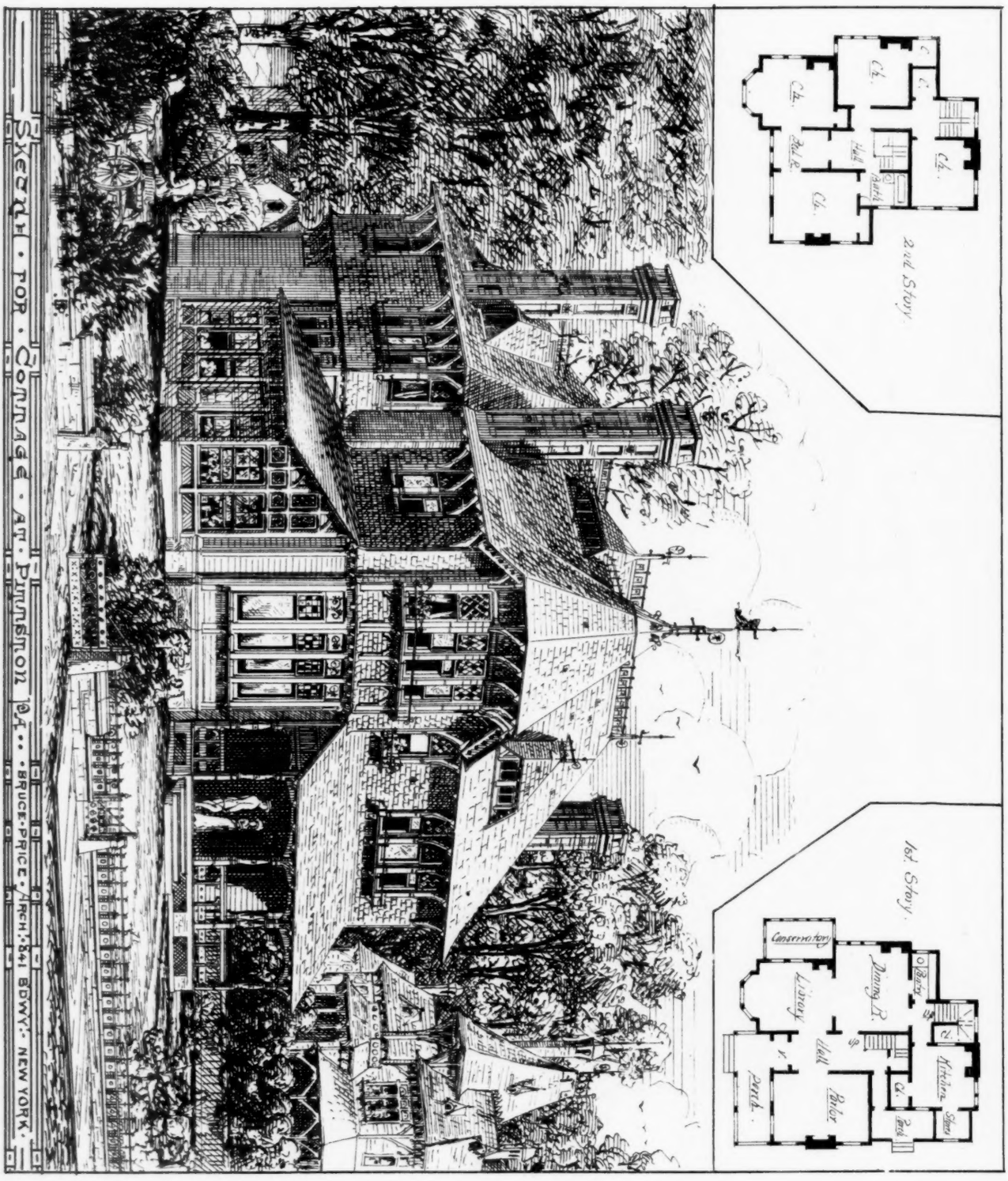
It was designed to construct this building so as to show a hard-wood frame from the base stone work to the second-story water-table, with porches, conservatory, balcony, and eaves-bracketing of the same. The work was to be oiled, and all chamfers colored. It

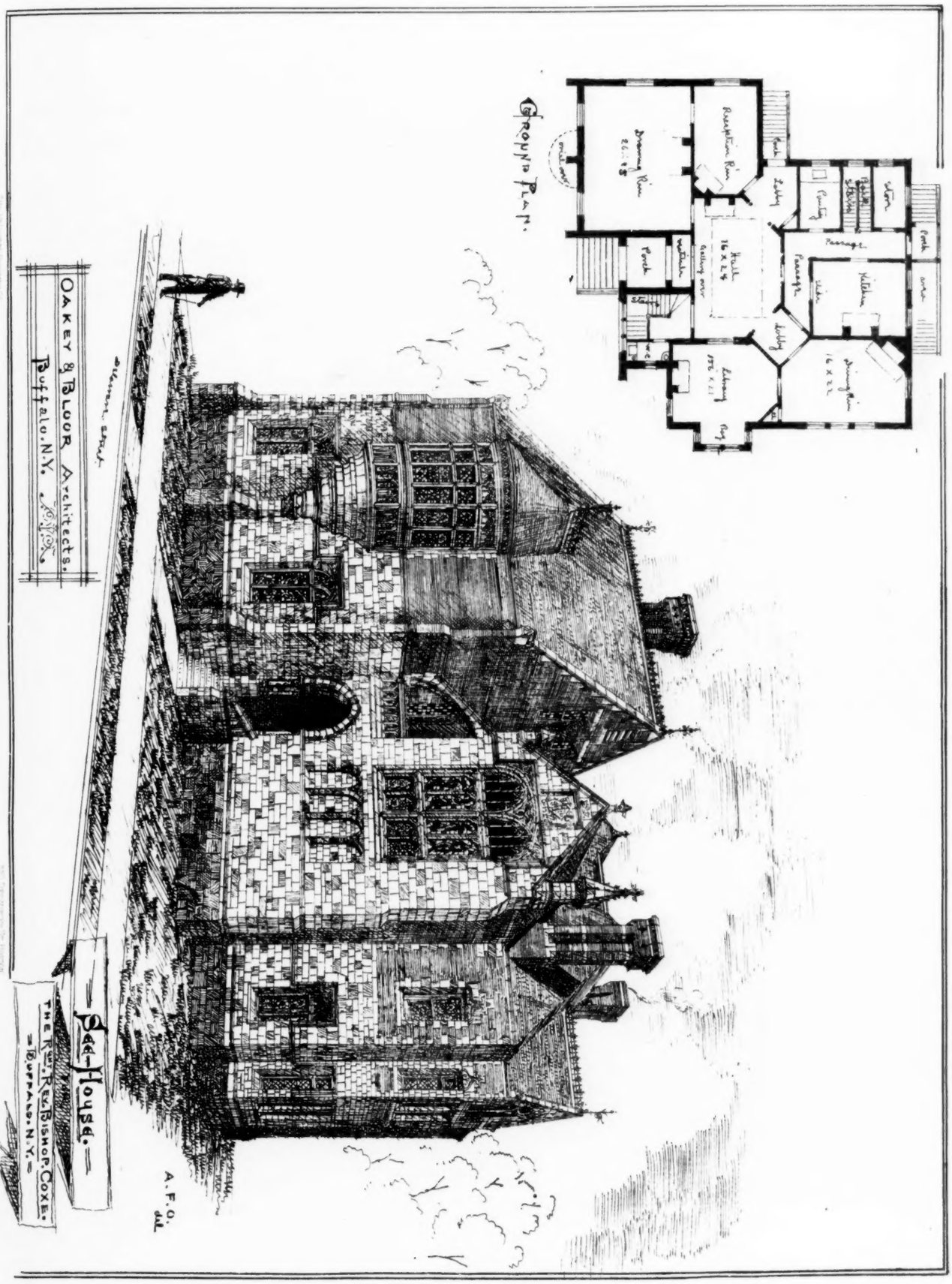
Two condemned City Churches

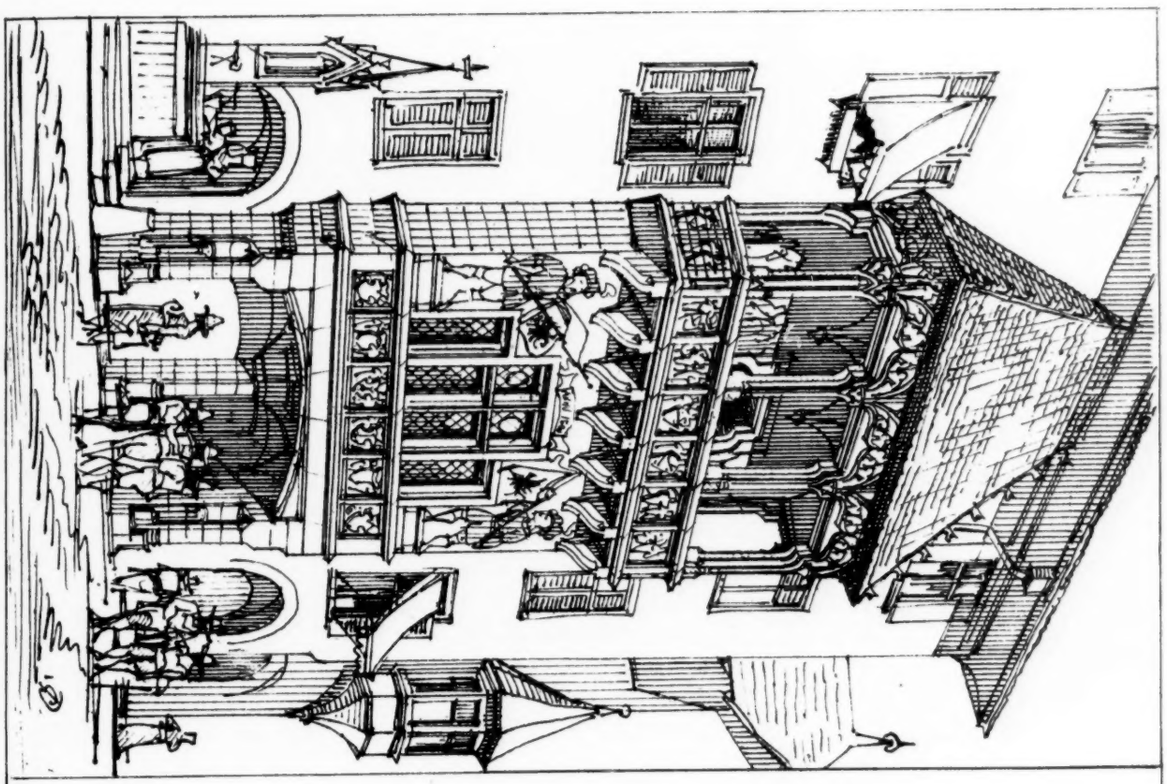
London.

Tower of S: Dionis Backchurch. Church of Allhallows: Bread St.

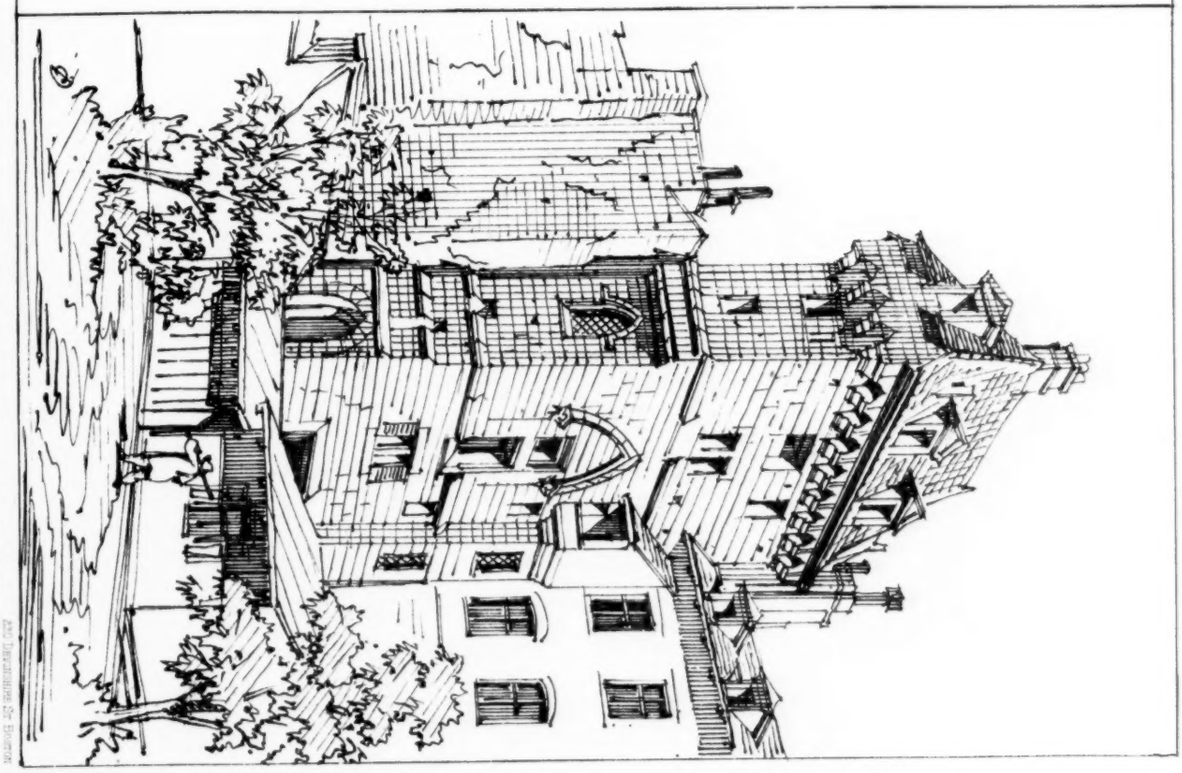
THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON


SKETCH FOR COTTAGE AT PUTNAM N.Y.
BRUCE PRICE ARCH. 241 BWY. NEW YORK.
2nd Story.
1st Story.
Conservatory
Library
Dining R.
Hall
Parlor
Kitchen
Pantry
Stairs


Ground Plan.
Bed-House.
THE RT. REV. R. BISHOP COXE.
BUFFALO, N.Y.
OAKEY & BLOOR, Architects.
Buffalo, N.Y.
A. F. O. del.



— THE GOLDNE DACHL, INNSBRUCK. —



— THE TOWER OF JEAN SANS PEUR, PARIS. —

was to be boarded with clapboards, and painted; the second story was to be covered with gray-green slates, finishing against hard-wood corner-posts and window-frames. All windows were to have broad outside sills, protected by iron railing, for flower-pots. The chimney-stacks were to be of pressed brick relieved with encaustic tile in panels. The top sash of windows filled in with domestic stained glasswork. The eaves were to be bracketed out over the second-story windows about four feet, to afford protection from sun and storm. It was estimated to cost between $5,500 and $6,000; but owing to the depression in the coal business and the consequent stagnation of almost all other business in the Wyoming valley, the carrying-out of the work has been "indefinitely postponed."

SEE-HOUSE FOR BISHOP COXE, BUFFALO, N.Y. MESSRS. OAKEY AND BLOOR, ARCHITECTS.

(Room 9, German Insurance Building, Buffalo, N.Y.)

This design is peculiar from the necessity of adapting it to the foundations now in the ground, and formerly intended for Christ Church, whose completion was abandoned. The drawing-room and reception-room are placed upon the foundation originally intended to carry the tower of the church. It has also been necessary to adhere to the lines of foundation on the lines of all but the rear wall. The materials are limestone from the neighborhood, with Amherst cut stone; and above a certain line the main walls are carried up in red brick with red joints. The roof will be covered with red tile. The mullions shown in the windows are to be stone in every instance, and with few exceptions the lights will be set in lead.

THE TOWER OF JEAN SANS PEUR, PARIS, FRANCE.

One of the dramas of the reign of Charles VI., of France, was the assassination of his brother, the Duke of Orleans, by the order of the Count of Burgundy, known as Jean sans Peur. The assassination accomplished, the Count of Burgundy, unaffected by the remorse which caused one of the actual assassins to place in a turret of the Hôtel Barbette where the deed was done, a lamp which was kept always burning, thought only to assure himself against all evil consequences that might follow. He retired to the Hôtel d'Artois, which from that time was known as the Hôtel de Bourgogne, and built there a donjon, which Monstrelet calls *une forte chambre de pierre bien taillée*. This donjon is still standing in Paris, and of it M. Edouard Fournier says: "Nothing is wanting in this tower, at least ninety feet in height; it even has its crenellations, and to restore to it its original appearance it will but be necessary to remove the roof. Certain symbols, a plumb-line and two planes, still exist in the tympanum of one of the bays on the left-hand side, and are, as it were, the signature of the builder. Jean sans Peur wore them on his coat-of-arms. Upon the right-hand side of the principal façade lighted in times gone by by an immense pointed window, almost wholly built up, juts out a turret of the same form as the donjon itself. This contains the staircase, which is itself a marvel: its steps, cut from a single stone, unfold themselves like the leaves of a fan about a newel of the boldest design, from the summit of which springs a tree, which rising to the ceiling clothes the whole vaulting of the tower with its admirably carved foliage. It is one of the most curious as well as the most forgotten jewels of our architecture of the fourteenth century."

THE "GOLDNE DACHL'," INNSBRUCK.

Count Frederick of the Tyrol, who was nicknamed "empty pockets," built about 1500, a palace which cost 30,000 ducats (about $70,000), to prove that the soubriquet was unmerited. One of its features is the rich late Gothic balcony covered by a gilded copper roof which gives the name to our illustration, which, with the Tower of Jean sans Peur, is taken from Dollinger's *Architectonische Reise-Scizzen*.

CORRESPONDENCE.

BRICK-MAKING IN CHICAGO AND VICINITY.

CHICAGO.

THE recent disaster at Rockford has been the cause of directing considerable attention to the method in which common bricks are made and used in this section of the country. I say common bricks, because the case is entirely different with pressed brick: wherever these are made, the parties engaged in their manufacture generally produce the best article that can be obtained from the materials procurable, since being used in exposed places, they are carefully examined by buyers. The price to be obtained depends altogether upon their uniformity of finish and color; and there is a great variation in the prices of pressed bricks from various localities.

With common bricks, on the contrary, it is assumed that they must be the cheapest kind made; and in trade it is common to compare prices of bricks from various localities and of different manufacture without reference to their quality. Wherever common bricks are to be employed in building, those which are cheapest, that is, bring the lowest price per thousand, are, in ninety-nine cases out of a hundred, used. This is not the case in localities such as those in the neighborhood of New York, where the standard grades of North River brick are well known, and where the manufacture of one locality supplies a large district. But, within a large area in the neighborhood of Chicago, every place of importance has its own brick-yards, and its own way of making bricks. It is seldom that common bricks are transported to any considerable distance. The clays vary in different localities; and more or less skill and care are taken in the manufacture. It may be assumed, however, that nearly everywhere the cheapest process is used, and whatever advantages the bricks of one locality have over those of another is due more to chance than intention.

The bricks of Milwaukee are justly celebrated; but they are used very little outside of that city. The pressed brick have a decidedly *buff* color, and are brighter than any other light-colored bricks made in this country. They have been highly prized in the East, and have been transported to great distances, and used for ornamental effects at great expense. They are not as even in size as Philadelphia bricks, and have to be rubbed when used in fine work. They are very little used in Chicago, where they can be had at moderate cost, because the prevailing coal-smoke of the city quickly destroys their color. The Racine pressed brick are fully equal to those from Milwaukee, and have a more creamy color. Both of these bricks have the added advantage of being the hardest pressed bricks made. The Milwaukee common bricks are the best made in the West. They are also buff in color, and extremely hard. Formerly the Milwaukee selected common brick were considerably used in Chicago for piers; but it is very seldom that they are now employed.

Everywhere in the State of Illinois the common bricks are superior to those of Chicago in uniformity and color; but in many places they are inferior in hardness. In some localities they are red; in others, buff. The red clays generally make the hardest bricks. The Rockford bricks have a beautiful buff color, and are very uniform; but are extremely soft. The clay used would probably make an excellent pressed brick with proper manipulation; and if well tempered with ground brick, and mixed with the proper quantity of sand, would make very good hard brick.

The Chicago common brick may be said to be of accidental growth. As there are no clay-banks here, and nearly all the country around about is of clay formation on top, it was first necessary to dig for the clay. The enlargement of the Chicago river, and the excavation of numerous slips in the lumber district, where vessels could be unloaded directly into the yards, afforded excellent opportunities for procuring clay cheaply. When new slips are to be dug, brick-yards are established all around them, and the excavated clay made into bricks. This system makes bricks cheap, and gets rid of the excavated matter with little expense. When a slip is completed, the brick-yards are moved off, and the lumber-business takes possession. Thus it will be seen that the brick-business is of a migratory nature of necessity, and consequently it is of little object to the manufacturer to employ any but the most primitive processes, and the least amount of machinery for properly preparing the clay. The manufacture lacks that permanence which is essential to its proper development.

Though this has grown to be a first class city in business importance, the manufacture of bricks has not improved during twenty years past. The slip-digging process is still going on, and the slip-shod method of making bricks is still continued. The primary fault in our bricks proceeds from natural causes. The clay-beds are more or less permeated with limestone gravel. As long as this is not eradicated, the pebbles are burned into lime, which slakes as soon as the bricks are exposed to moisture; and many of them fall to pieces in consequence. The force of these fractures is so great, that cracks are often found in new walls, proceeding from small pebbles which have slaked after the bricks had been laid. These pebbles could be got rid of either by washing the clay, or grinding it. The latter process is employed in preparing the clay for making pressed bricks at Downer's Grove, near this city. The particles of limestone are thus distributed uniformly through the bricks, and are harmless. In consequence of the presence of these limestone pebbles, the percentage of loss in bricks after delivery is very large; and it is the custom to estimate twenty-two and a half bricks to a cubic foot of wall, while in reality each foot contains only eighteen bricks. Brick manufacturers only have to handle the bricks once. They are placed on carts at the kilns, and delivered directly at the building-sites. It is quite customary for them to delay firing the kilns after stacking, when the demand is slow; and they make great exertions to deliver them as soon as possible after cooling off, lest the bricks, by standing in the kilns, may become air-slaked.

Another fault in the manufacture of Chicago bricks is the failure to temper the clay. This should be done by grinding up the soft bricks of each kiln, and adding the dust to each new mixing, together with the proper quantity of sand. Our brick-makers use the sand only, and occasionally introduce coal-screenings, which cause the kilns to burn uniformly. This failure to properly temper the clay is due to several causes. First, they sell all the soft bricks, having established it as a precedent that all buyers must take the *run of the kiln*. This fault is shared by the builders who pay for, and the architects who accept, soft bricks. Second, the manufacture is not regarded as a permanent business,

and the yards do not remain long enough in any one place to make it an object to the makers to invest in a sufficient plant. A third cause is, that few if any understand the business well enough, or engage in it long enough, to know the necessity for properly tempering clay.

This condition of the brick manufacture is one of the misfortunes of a city where bricks are so extensively used as they are here. For, notwithstanding the former combustible nature of Chicago, it is now the only large city in the United States in which the erection of frame-buildings is restricted by law through its whole extent. As bricks must be employed for buildings of the humblest description, the common bricks are of necessity used in such for front, as well as rear and inside walls. While in New York, Washington, or Milwaukee, the common bricks will make a very presentable wall, here they present a very piebald appearance, yet the poor man has no other resource than to use them in the front of his house, unless it is the questionable one, so much in vogue, of smearing and tuck-pointing. This deplorable method first came in vogue nearly twenty years ago as an expedient for making the ordinary Indiana pressed bricks look like Philadelphia bricks. It is now extensively applied to walls of the commonest Chicago bricks. As these have no particular color they are brought to a uniform red or buff to suit the owner's taste, and then striped off with a tuck joint of black or white, laid on with a steel tool and ruler, generally without reference to the position or size of the original joints.

There are no pressed bricks made in the immediate neighborhood of this city. The first employed here came from Indiana, and these are still used. They are red, but not uniform, and only moderately hard. By careless handling, the corners generally become abraded before they arrive at the buildings. It is customary to strike the joints as smooth as possible, and then resort to the smearing with red wash and tuck-pointing. Within the past year there has been a slight improvement in the manufacture of these bricks; and some fronts have been laid with them in black mortar, with joints of about a quarter of an inch, and showing their natural color. They are about as good as those laid with the North River Collaburgh bricks.

There are now several pressed brick-yards in the neighborhood of Downer's Grove, about twenty-five miles west of here. This is the nearest point at which clay has been found suitable for making pressed brick. In these yards the clay is thoroughly ground, and the limestone pebbles become disseminated through the mass. A machine made in Rochester, N.Y., is used for pressing the bricks, and they are burned in a walled kiln. These bricks are very uniform in size, and have sharp edges. The lime gives them a slightly mottled appearance, and they have a light reddish-brown color.

The hydraulic dry-pressed bricks from St. Louis have been considerably used here. They are the best-looking bricks made west of Philadelphia and Baltimore, and superior to the bricks there made in uniformity of color. It is not easy to distinguish them from the Philadelphia bricks. But they are not equal to them in hardness, and are sometimes affected by frost. This is a fault inherent in all dry-pressed bricks when used in a very cold climate.

The Indiana bricks sell here for fourteen dollars; and those made at Downer's Grove cost sixteen dollars. The St. Louis bricks are delivered at twenty-five dollars. Philadelphia bricks cannot be delivered in Chicago for less than forty dollars. Milwaukee and Racine bricks cost twenty dollars delivered here.

ROMAN CATHOLIC CATHEDRAL AT JERSEY CITY. — BROOKLYN MUNICIPAL BUILDINGS. — WHAT A TENEMENT-HOUSE IS?

NEW YORK.

JERSEY CITY has secured a large Roman Catholic cathedral from designs by Mr. P. C. Kieley of Brooklyn, an architect well known for his works in Roman Catholic church building throughout the country. His latest work, barely entered upon as yet, is the new Church of St. Francis Xavier in Sixteenth Street, New York City. St. Patrick's Cathedral stands on Jersey City Heights, and from the site magnificent views of New York and New York Bay, Hoboken, and Jersey City can be obtained. Excepting the spire, the building is now finished, and was dedicated on the 19th inst. The corner-stone was laid Nov. 13, 1870, and since that time the work has been carried on under the most adverse circumstances. The design is Gothic, the plan showing a nave and aisles, chancel and side chapels, but no transepts. One tower is carried up at the north-east corner of the front. The extreme length of the building is 272 feet, and the extreme width across chancel, chapel, and rectory, 138 feet. The width of the church proper is 86 feet, and the spire rises to a height of 225 feet, with a base 33 feet square. The church is built of blue flint rock obtained from the site and from the neighborhood. The stone is laid in courses, with tooled joints. The finish of door-jambs, windows, buttress caps, and cornices, is of light Hallowell, Me., granite, with hammered face. Granite columns are also used, eight on either side, to support the clere-story walls. The window-heads are filled with geometrical tracery, and the glazing will be double, double thick French plate on the outside, with the stained glass sashes within. Of the aisle windows running very high, there are nine on one side and ten on the opposite side; while over the main entrance, opening upon the organ loft, is a window 30 feet high. On either side of the sanctuary are windows containing figures, of St. Patrick on the Gospel side, and St. Bridget on the Epistle side, while the windows about the end of the chancel are five in number; the central one containing the Sacred Heart, with the Blessed Virgin and her mother St. Anne, on one side, and on the other hand St. Joseph and St. Joachim. Below these windows will be a series of panels filled with oil paintings of the history of the Incarnation. In a series of arcaded panels along the aisle walls, below the aisle windows, the history of religion will be graphically portrayed. The pews, which are very comfortably built, will seat about 2,000 people. The interior woodwork is to be in ash and black walnut. A chapel 30 x 70 feet will flank one side of the sanctuary, while from the other side a cloistered passage leads to the residence of the clergy. Careful attention has been paid to matters of heating and ventilation.

Mr. Napoleon Le Brun has on hand a small alteration to the parsonage of the Roman Catholic Church of the Epiphany, on Second Avenue, near Twenty-first Street. The common brick front is to be replaced by one in brick and stone, more in keeping with the adjacent church; though the sheet-metal cornice is a matter for which the church pocket alone is responsible.

And apropos of metal cornices, Brooklyn has disgraced herself in the new municipal building run up in the rear of the City Hall. It may best be covered in motive and in appearance by the word "mean." Scrimped in size, in workmanship, and in expression, the cheap marble veneering of the front is appropriately capped by a sheet-metal cornice; and even this is trimmed down to the smallest possible size. As the building is to cost a good round sum, this scrimping does not mean economy to the taxpayers; and even were the wretched thing cheap in actual cost, it would still be disgracefully dear for any citizen to claim as his own, and as carried out almost justifies the newspaper criticism in calling the adjacent homely but honest City Hall "magnificent and classic" in comparison.

Much interest is felt touching the probable result of the combination of the leading brick manufacturers on the Hudson River. The Union expects to govern the brick market, and meet the hard times by a forcing up of prices. The dealers do not seem to care much, as they are not selling, and of course are not anxious about buying.

An interesting decision is that recently given in the suit of Mrs. Fanny Musgrave *vs.* John H. Sherwood, turning on the point whether a French flat house shall properly be called a "tenement house." In December, 1873, Mr. Sherwood, who is an extensive holder of Fifth-avenue property, sold to Mrs. Musgrave the third one of a row of first-class dwellings on Fifth Avenue, above Fifty-fourth Street, and it was understood that the houses should remain first-class private residences. Two years after Mr. Sherwood extended the two adjoining houses next the corner, and remodelled the interiors to fit them as apartment-houses, though the exteriors were not changed. Mrs. Musgrave objected, but Mr. Sherwood paid no attention to her remonstrances. Now Mr. Sherwood begins operations with the intention of putting two additional stories upon these two adjacent houses, and Mrs. Musgrave applies for an injunction to restrain. From the text of the decision of the court the following points are taken: —

"It was conceded on the argument that the title under which the defendant holds his property forbids the erection thereon of a 'tenement house,' and thus the point is presented whether or not the conversion and change made by him of his two houses into a French flat or apartment-house is a violation of his covenant. . . .

"The obvious object of such a provision was to free the premises from the confusion and disquiet which must surround any building which is the abode of several distinct families. That the grantor intended to dedicate and preserve the property to and for the use of first-class private dwelling houses is obvious; and while it is conceded that the annoyance and discomfort arising from the occupation of defendant's structures for the purpose designed would be somewhat less than if they were the abodes of the poorer classes, it is still manifest that the distinction is in degree and not in kind. The bustle, confusion, and want of privacy which the grantor intended to guard against would necessarily be present, and to that extent at least his intention would be defeated.

"It was strenuously urged by the defendant that the expression 'tenement-house' must be confined in meaning to the abodes of poor families who, as tenants occupy a single building. The difficulty attending this definition is, that there is no fixed standard by which poverty and wealth can be measured. How many dollars must an individual have to be entitled to be called rich, and how few must he possess to be regarded as poor? Will the name of the building change as its occupants change? Manifestly, it seems to me, not. Some other definition than one which shifts and changes with the families occupying it must be sought for. . . .

"The compound word 'tenement-house' must therefore signify and mean a house with distinct tenements or homes, which separate and different families or persons occupy as tenements; not merely a boarding-house or hotel — for in these the occupancy is not one of tenancy, but that of guests or boarders. . . . No reason occurs to me why, literally and truly, the building of the defendant, which is to be occupied by tenants, in name and in fact, is not clearly within the true meaning and definition of a 'tenement-house.' The injunction asked for must also for this reason be granted."

CHURCH PROPERTY to the amount of $137,000,000 in New York City is untaxed.

TRAPS FOR WASTE-PIPES.

THE conditions under which traps fail are: —

1. The downward passage of water below the trap when the supply is exhausted above will tend to produce a vacuum below; and the pressure of the air above will cause a certain amount of the water to be siphoned out, — sometimes sufficient to unseal the trap.

2. Threads and hairs lodge upon the bridge of the trap, and by capillary attraction the water is siphoned out.

3. The evaporation of the water in the trap, if it be left unused too long, will destroy the seal.

4. A pressure from below is liable to force gas through the water: — a pressure of one ounce to the inch is sufficient to raise a column of water one and three-fourths inches high.

5. The gases, lighter than air, accumulating at the top of the waste-pipes will become absorbed by the water, and be given off again to the air above the trap.

6. If not properly formed, they are liable to become clogged with sediment.

7. In exposed situations, they are liable to be burst by the action of frost.

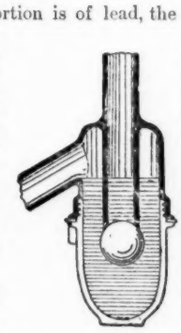
The liability of traps to be siphoned out by a flow of water in the wastes below is prevented by forming them so that the surface of the water beyond the inlet-pipe will be several times as large as that of the water in the inlet-pipe. In the old D-trap and also in others now manufactured, the seal is secured in this way.

A vent-pipe to the waste beyond the seal prevents the accumulation of a heavy pressure in the waste-pipe beyond the seal, and is a desirable feature in every system of waste pipes.

As a precautionary measure against the lodgement of threads on the bridge of the trap, and the accumulation of sediment, the current of water flowing through the trap should be rapid enough to scour out all obstructions. This necessity has brought about the too general use of the ordinary S-trap, which is defective in so many other respects.

The ability of water to absorb gases and give them off again is one of the greatest difficulties that have to be contended with. It may be overcome by connecting a ventilating pipe with the trap above the seal, and taking it to the kitchen chimney, so producing a constant current of the air in the pipe toward the outer atmosphere. Another method which promises security is that offered by the action of a floating ball, and is embodied in a late invention of Mr. B. P. Bower of Cleveland.

This is shown by the cut. The upper portion is of lead, the lower part of glass, and the ball of rubber. There is a brass seat at the lower end of the inlet-pipe for the ball to work against, and a rubber gasket at the junction of the glass with the lead. When the ball is at rest, there is no communication between the water below and that in the inlet-pipe, and consequently no transmission of gas to the air above, however much the water beyond the inlet-pipe may absorb. When the water is in motion, the current is against any pressure of gas, and it is driven with the water and air down the waste-pipe.



Ammonia, which will find its way through an ordinary S-trap in less than a minute, and show its presence above the seal by discoloring red litmus paper, fails to show any such evidence of its passage through this trap after being exposed for twelve hours.

The liability of the trap to be siphoned out is overcome by the comparatively large surface of water exposed to the air beyond the inlet-pipe.

No amount of back pressure that the wastes are liable to bear will force the water or gas back through the inlet-pipe. This fact will be appreciated by plumbers who have occasion to clean wastes by means of the force-pump.

In case the water above the trap is evaporated, that below the ball serves to seal the trap quite as effectively; and this part of the water, being exposed to the damp air of the sewer, is quite as liable to be augmented by condensation as to be lessened by evaporation.

The ball assists in the scouring action of the water in the lower part of the trap.

The making of the lower part of the trap of glass allows an opportunity for observing if it is working satisfactorily.

The compressibility of the ball allows the water to freeze solid in the trap without bursting it.

The depending portion of the trap, which is the part most liable to be broken, can be replaced by any one, and costs but a few cents.

This trap affords a good opportunity for showing the existence of gas in the waste-pipes. After standing in one position over night, that portion of the surface of the ball below the inlet-pipe will be discolored, while that above will be lighter.

In view of the power of this trap to stop all back-flow or transmission of gases, it may be said to afford perfect protection. It may be used with advantage in connection with fixtures where the only other sure method of getting rid of sewer-gas (a ventilating pipe) would be impracticable or more expensive. F. A. C.

CLEVELAND, O., Aug. 24.

GALLERIES AS FEATURES OF PROTESTANT CHURCHES.

[From the *Builder*.]

IF a Protestant church be chiefly to preach and hear a sermon in; if the reading of the prayers and administering the communion ought to be performed in the sight and hearing of the whole congregation, and there be no separation of the clergy and laity recognized therein: then it follows that such church should afford a compact open space the bounding lines of which are almost equidistant, front and flank, from the pulpit placed near one end, — square, polygonal, circular, — a form, in truth, the very antithesis of what is now in general use, and everywhere being erected; in fact, a building in which to celebrate the worship of Protestants, whose genuine ritual observances, as Barrow says of Christianity, being few in number, in nature simple, has no business with a clerestory, which is entirely unmeaning in it; and it cannot dispense with a gallery, — a feature which the natural limitations of the human voice render essential to it, — if enormous waste of money in building is to be avoided; for beyond a certain limited number it is not possible to accommodate a congregation that is to be entertained through the medium of the ear rather than the eye, on one level. This truth is referred to, if I remember rightly, in explaining his object in the plan of St. James's Church, Westminster, by Sir C. Wren, who was well aware that his fifty London churches would not suffice for the demand, should he set his face against galleries, which he did not, for they all with but one exception have galleries. The Wesleyans and Nonconformists also are aware that they would have to build nearly twice as many chapels, were they to dispense with galleries.

Mr. Garbett, in his excellent "Treatise on the Principles of Design in Architecture," calls the gallery "an odious requirement of modern parsimony." I am loath to differ from so judicious a writer; but I can conceive a gallery being inserted from quite a different motive to parsimony, — viz., to bring within hearing distance of one man as many as could be decorously seated for the purpose, which could not be done without it. Take out the gallery of most churches or chapels, and extend the ground floor in any direction to receive the displaced seats, and these would be beyond the range of the preacher's voice. As the voice will not go forward beyond 70 or 80 feet, and *will* rise more than 5 or 6 feet, the height of the ear from the ground, the idea of extending the accommodation on a vertical line will naturally occur without the promptings of parsimony; the idea would occur where funds were unlimited and ungrudged. It is as natural a way of increasing the seeing and hearing accommodation in churches, as it is in theatres and operahouses, where usually there are some half-dozen galleries, or in great libraries and museums. It is as natural to erect a gallery in a church as to build an upper story to a house; and there is no more reason for confining church accommodation to the ground-floor space than to restrict dwelling-houses to one story, or ships to one deck. This is so obvious that the wonder is that churches generally have not two heights of galleries rather than no gallery at all.

It is incumbent on those who dispense with galleries, to show that there is something irreligious in a gallery, or that He who has promised to be present where two or three are gathered together in His name, made an exception in the case of the worshippers being arranged in two tiers, or one above another.

If a gallery is not objectionable on religious or ecclesiastical grounds, which should be one and the same thing, it should not be on architectural grounds; for it cannot be very inimical to beauty or due expression of solemnity. That a gallery is no very great impediment to architectural beauty, many existing churches and chapels will testify, — St. Martin's-in-the-Fields, for example, and most of those of Wren, who made galleries harmonious features of his designs. These are Classic in style; but the gallery is more congenial to the nature of Gothic than it is to Classic; *multitude* being a principle peculiar to the Pointed style, which admits of and rejoices in a division into small parts; and it would offer justification of the tripartite disposition which is not inseparable from the clerestory, the exclusion of which would necessitate more of that perpendicular elevation of wall so essential to dignity.

The introduction of galleries would give the Gothic style an opportunity of showing so far a new phase, and making a step in advance, — like the pushing out of a new limb of an animal in the geological theory of progressive development. It would rectify the plan and vertical section of churches, which are both now generally, in every respect, the reverse of what they should be. They belong to the church system of the Middle Ages, to ecclesiastical principles and usages which are not recognized by Protestants.

A simple compact form, nearer to that of the chapter-house or lady-chapel, which is often a model of architectural beauty, than to that of the entire cathedral, which too many modern churches affect, is as susceptible of all the chaste beauty and solemnity befitting a sacred edifice as any cross-plan, Greek or Latin. There is no limit to the beauty of which it is susceptible in the way of decoration and character, which the grace of superior fitness must enhance: the gallery front may have a fairy lightness, and its soffit or ceiling, as well as that of the church, may be a complicated and beautiful geometrical problem.

But I am sorry to observe not only the omission of the gallery in new churches, but its removal from old ones, which is a still greater mistake; for the gallery of an old church is as interesting archæologically as any other feature, as a natural outgrowth and development of time and ecclesiastical progress, indicating as it does changes therein made in sympathy with revolutions in the religious feelings and opinions of the people, as represented by the Reformation, rise of the Puritans, and great Civil War; viewed in which light it is a connecting link between the Mediæval church and the present day, and a chapter in architectural and ecclesiastical history. The gallery, more than any other, is a feature adapting a church to the requirements of the present day and the Protestant religion; and the removal of it is throwing the church, so to speak, centuries back, and re-adapting it to bygone times. Very often, I grant, you find a Dissenters' chapel with too wide a gallery, which has a smothering effect upon the place; but very little in regard to seat-room is gained by this, and generally a sacrifice of one line of seats would have made all the difference, and secured an open airy chapel instead of a choked-up one.

Galleries were first inserted, both in churches and chapels, for the best possible reason, viz., to bring the greatest number of persons possible within the sound of the gospel at a given cost in each case, generally the utmost sum available for the purpose; the harvest being plentiful, but the laborers few. The same reason exists still; neighborhoods destitute of churches being known to exist everywhere, to a large extent even in London. Taking out galleries is increasing the destitution, and is tantamount to pulling down churches; removal of the galleries from two churches is almost equal to the destruction of one entire church, for it is only very rarely it can be done without reducing the seat-room below the demand. At St. John's Church, Chester, which lost its galleries a few years ago, owing to its great size (having been a cathedral in Catholic times) sufficient seat-room was obtained on the ground-floor. But it lost much of its archæological interest. The interest of its Norman architecture was not increased, while the link that united the Norman and Pointed church to the present day is wanting, and the latest chapter of its historic record destroyed.

SAMUEL HUGGINS.

NOTES AND CLIPPINGS.

FIRES. — The culpability of those who compel workingmen to risk their lives in flimsy buildings has been once more shown this week by the terrible fire in New York on the 3d inst., by which some fifty buildings were destroyed, causing a loss of about half a million dollars. But worse than the loss of property is the loss of life, which is variously estimated at from ten to as many as a hundred lives. The last estimate might be thought exaggerated, were it not that the conditions were peculiarly hostile to those who were imperilled; and we all remember that the first account of the Brooklyn Theatre fire stated that only a few lives had been lost. The buildings destroyed were mostly factories and tenement-houses. The fire started in Hale's piano factory, where a workman left a pot of varnish unwatched for a moment on a stove. This building was eight stories high, and contained at the time of the fire about two hundred workmen, most of whom were employed in the stories above the one — apparently the second — in which the fire caught.

Another case of culpability, though of a different nature, is reported from Paris, Tex., where on the 31st ult. a man, stating his intention of burning down the town, poured oil on the floor of a saloon, and set it alight; so well did his plan succeed, that the one fire-engine of the town could not extinguish the fire; and consequently hotels, offices, stores, and dwellings were destroyed, causing a loss of a million dollars. Several lives are reported to have been lost.

ACCIDENTS. — The floor of a side-building attached to the Dye Works of Mr. Somers, over Cooper's Creek, near Philadelphia, gave way on the afternoon of Aug. 28, from the pressure on it, burying one of the men in the ruins. When taken out, it was found that he was badly injured.

Another criminal accident is reported from Cincinnati, where workmen excavating for the foundation of a new building undermined the foundations of the adjoining building so as to cause its fall. Four women were buried in the ruins, one of them being dead when taken out. Two men were killed outright, one of them the foreman of the work; and five or six other persons were injured, some of whom are not expected to recover. The owner of the wrecked building had been told on the preceding day that the building was unsafe, but he neglected to warn the inmates. It was not until the building was in a very dangerous condition that any attempt was made to shore it up.

THE KENTUCKY NATURAL BRIDGE. — It is said that the Natural Bridge, whose fall we chronicled a short time ago, was blown up by some malicious person. It spanned a tributary of the Little Sandy River, 150 feet wide, and was 90 feet above the stream.

THE INDIANA STATE HOUSE. — The experts appointed to examine the plans for the new State House have made their report to the commissioners, but it has not yet been made public. It is quite certain from what can be learned, they have rejected all the designs. This reflects well on the gentlemen appointed to make the examination,-Mr. Lee, the architect, and Major Smith, C.E. Mr. Allen, the builder, refused to act with them, and prepared a lengthy document defining his position. The commissioners will continue in session until a decision is made. Unless they reject the counsel of the experts, they will call for a new competition.

BUILDING IN THE SANDWICH ISLES. —The Honolulu (Sandwich Islands) *Advertiser* of Aug. 11 says: "In consequence of the new plantation enterprises on the different Islands, as well as the considerable amount of building going on in Honolulu, there is just now a demand exceeding the supply for bricklayers, masons, and carpenters. It does not follow, however, that a large immigration of skilled mechanics would find ready employment here; but still there is room for a few more, who would unquestionably obtain fair wages for some time to come."

FINDING EMPLOYMENT ABROAD. — Within three months about 300 carpenters have sailed from this country for England. On Aug. 28 twenty-five more carpenters sailed on the "Wisconsin," of the Williams & Guion line. They have made a contract with building firms at Manchester, England, for three years' service. They will work eight hours a day, and receive wages equivalent to $3.50 in currency. A half-holiday on Saturday will also be allowed. The expenses of the trip across the ocean will be deducted from their wages in easy instalments.

THE SOLDIERS' AND SAILORS' MONUMENT, BOSTON. — The bronze statue representing the genius of America now crowns the new Army and Navy Monument in Boston; and the figures of Peace, History, the Army, and the Navy, have been placed in position. The bas-reliefs which are to occupy the panels are four in number. The first one represents Gov. Andrew and staff on the State House steps, reviewing troops at the outbreak of the war; the second, the troops passing by Gov. Andrew and staff on their return from the war; the third, the Sanitary Commisssion making bandages, with soldiers putting their wounded companions into the ambulance wagon; the fourth, a naval engagement, in which a monitor and man-of-war are coming up a river and firing upon the fortifications.

THE INTER-OCEANIC CANAL. — The *Engineering News* says that Lieutenant L. N. B. Wyse, U.S.A., has made a report on the Darien survey in the interest of the Nicaraguan project. The gorge of the Tihule is found to be 450′ above the lowest tides, so that hopes of a lockless canal through a gap between the Cordilleras are groundless. A tunnelled canal is also out of the question; but instead a canal sixty-five miles long is suggested, which would start at Real de Santa Maria on the Tuyra and go to the Atrato. The highest level by this route would be 160′. This route is said to be better than any that were surveyed by Commodore Selfridge, and to be in many respects superior to the Nicaraguan line. Lieut. Wyse also suggests a canal without locks, but with a tunnel, the cost of which would be about $4,000,000 per mile. This canal would start from the Chuncunaque river just above Yaviza, and then follow a straight line along the course of the Tupisa river, across the Cordilleras, and open into the Atlantic just below Point Gandi.

OBITUARY. — We regret to learn that Mr. John T. Dexter, a well-known *litterateur*, died in London on the 13th of August. He was an Englishman by birth, and thirty-six years of age at the time of his death. Mr. Dexter was for some years the private secretary of Sir Charles Dilke, M. P.; and his relations with the latter and other prominent English politicians thoroughly familiarized him with the inside workings of the political world. He was especially familiar with the great question which is now agitating England in reference to the consolidation and reform of the government of the metropolis, and wrote and spoke frequently, and with great clearness, upon this complicated subject. He was a regular contributor to the London *Athenæum* and other leading English periodicals, and for several years acted as the regular London correspondent of the Philadelphia *Evening Telegraph*. He was also a contributor to some other American periodicals, including the *American Architect and Building News*, for which he wrote the instructive series of papers on Ceramics at Philadelphia. Last year he visited this country, and remained in Philadelphia during the greater part of the Centennial as the correspondent of English journals. Mr. Dexter was a master of good English, a ready and attractive writer, and a fluent speaker.

CLEOPATRA'S NEEDLE. — In order to determine the best site for the Egyptian obelisk, wooden models of it have been erected on different eligible sites in London.

FIRE AT VENICE. — It would seem that a fire occurring at Venice would be easily extinguished; but recently a building full of valuable objects was almost wholly destroyed by fire because the pumps would not work, and want of discipline prevented the forming of a chain of bucket-passers. The *Gazetta del Veneto* says: "Let not those whose duty it is forget that Venice is rich in monuments and masterpieces of art in whose preservation and safety the whole of the civilized world is interested. Let us, above all, not forget the fire of SS. Giovanni e Paolo."

WARMING AND VENTILATION. — Flavitsky uses double windows, placing an air-chamber under each window, into which the fresh outside air is admitted, and heated by ribbed tubes, by means of water or steam. The hot air rises between the windows, and enters the room near the ceiling.